



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,538	01/27/2004	Kazunari Oyama	02910.000110.	9614
5514	7590	10/13/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			CHANG, KENT WU	
			ART UNIT	PAPER NUMBER
			2675	
DATE MAILED: 10/13/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/764,538

Applicant(s)

OYAMA ET AL.

Examiner

Kent Chang

Art Unit

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/12/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Applicant's arguments filed 1/10/05 with respect to rejection of claims 1-9 have been fully considered and are persuasive. The rejection of claims 1-9 has been withdrawn. However, a rejection based on newly found references is presented below.

#### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Information Disclosure Statement***

3. The references listed in the Information Disclosure Statement submitted 1/10/05 have been considered by the examiner (see attached PTO-1449).

#### ***Claim Rejections - 35 USC § 112***

4. Claims 1-2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites applying a maximum voltage to drive the FED, then applying a smaller voltage for driving the FED. Such a limitation cannot confer patentability since it merely depends on how the user operates the FED, e.g., whether the user operates the display device with a driving voltage lower than the driving voltage ever applied in the past, or lower than the upper limit of the driving voltage that was used to test the device during manufacturing process. It seems that infringement would exist if a user just

simply operate the FED with a driving voltage within the operating range since any driving voltage level within the operating range would be smaller than the maximum voltage (upper limit in the operating range).

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kitamura et al (US2002/0031972).

Kitamura teaches a method of driving and the manufacturing method of an electron-emitting devices formed on a substrate, in each of which an electron-emitting member including a plurality of carbon fibers is capable of emitting electrons when a driving voltage is applied between a cathode electrode on which the electron-emitting member is formed and a counter electrode disposed in opposition to the cathode electrode, comprising the steps of: applying a voltage  $V_{max}$  higher than the driving voltage to a first electron-emitting device to cause an I-V characteristic of the first electron-emitting device and an I-V characteristic of a second electron-emitting device to become closer to each other, the first electron-emitting device being operative to emit a relatively larger number of electrons among the plurality of electron-emitting devices when a predetermined voltage is applied, the second electron-emitting device being operative to emit a relatively smaller number of electrons among the plurality of

Art Unit: 2675

electron-emitting devices when the predetermined voltage is applied; and applying, according to input data, a driving voltage  $V$  smaller than the maximum applied voltage  $V_{max}$  between the cathode electrode and the counter electrode to drive the plurality of electron-emitting devices (the equalizing process, see Paragraph 0057-0059, note that after the equalizing process, the device is driven with normal driving voltage).

As to claims 2, 4, 6, 8, the electron-emitting device of Kitamura includes a plurality of carbon fibers selected from among a plurality of carbon nanotubes, a plurality of graphite nanofibers and a mixed plurality of carbon nanotubes and graphite nanofibers (Paragraph 0041).

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Dean et al (US Patent No. 6,645,028).

Dean teaches a method of driving and the manufacturing method of an electron-emitting devices formed on a substrate, in each of which an electron-emitting member including a plurality of carbon fibers is capable of emitting electrons when a driving voltage is applied between a cathode electrode on which the electron-emitting member

is formed and a counter electrode disposed in opposition to the cathode electrode, comprising the steps of: applying a voltage  $V_{max}$  higher than the driving voltage to a first electron-emitting device to cause an I-V characteristic of the first electron-emitting device and an I-V characteristic of a second electron-emitting device to become closer to each other, the first electron-emitting device being operative to emit a relatively larger number of electrons among the plurality of electron-emitting devices when a predetermined voltage is applied, the second electron-emitting device being operative to emit a relatively smaller number of electrons among the plurality of electron-emitting devices when the predetermined voltage is applied; and applying, according to input data, a driving voltage  $V$  smaller than the maximum applied voltage  $V_{max}$  between the cathode electrode and the counter electrode to drive the plurality of electron-emitting devices (see the waveform 180 in Fig.1 and its corresponding description, note that the voltage being applied in time period  $t3-t4$  is higher than the driving voltage being applied in time period  $t5-t6$ ).

As to claims 2, 4, 6, 8, the electron-emitting device of Dean includes a plurality of carbon fibers selected from among a plurality of carbon nanotubes, a plurality of graphite nanofibers and a mixed plurality of carbon nanotubes and graphite nanofibers (see column 2 lines 15-22).

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2675

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamaguchi et al (US Patent No. 6,184,851); Lee (US Patent No. US2002/0175618); Aoki et al (US Patent No. 6,712,660).

**CONTACT INFORMATION**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kent Chang whose telephone number is 571-272-7667. The examiner can normally be reached on Monday to Thursday from 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz, can be reached at 571-272-3638.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

**571-273-8300**

Hand-delivered responses should be brought to the Customer Service Window, now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

Art Unit: 2675

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



Kent Chang  
Primary Examiner  
Art Unit 2675

kc

10/8/05